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APPEAL BRIEF

Appellants timely filed a Notice of Appeal to this Board on July 28, 2008 appealing the decision of the examiner in the Final Office Action dated May 29, 2008 for the above captioned application. Appellants hereby submit this Appeal Brief pursuant to 37 C.F.R. 41.37.

(1) REAL PARTY IN INTEREST

The real party in interest in this action is Champion Technologies, Inc., the recorded assignee of the entire right, title and interest in and to the patent application now under appeal before this Board. Champion Technologies, Inc. is a corporation of the State of Texas, having a place of business in Houston, Texas 77098.

(2) RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, Appellants' legal representative, or Assignee that will affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 4, 7-10, and 12-17 are pending in the application. All of the rejected claims 4, 7-10, and 12-17 are under appeal.

(4) STATUS OF AMENDMENTS

Appellants proposed no amendment in response to the Final Office Action on which this appeal is filed. There are no outstanding amendments that have not been entered by the examiner.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The only independent claim involved in this appeal is independent method claim 7. Support for the claimed subject matter is provided parenthetically with reference to the originally filed Specification and the drawings. However, the specification may include further support for the claimed subject matter. This Summary is provided to guide the Board in its understanding of the claimed subject matter rather than to limit the scope of the claims to what is included parenthetically in this Summary.

Independent claim 7 is directed to a method of treating a gas well. An aqueous mixture is introduced into the well during gas production from the well (see generally Specification, p. 4, lines 8-11, p.14, lines 20-23, and p.18, lines 1-17; and for additional interpretation of "gas production," see p.1, lines 9-17 and p.8, lines 10-13) to reduce liquid loading (see generally Specification, p.4, line 9; and for additional interpretation of "liquid loading," see p.1, lines 9-17). The aqueous mixture includes an amphoteric surfactant in an effective amount (Specification, p.4, lines 1-7 and p.19, lines 1-12) to create a stable foam within the well (Specification, p.12, lines 13-14 and Table 2). The amphoteric surfactant has the general formula:



(Specification, p.6, line 15). X is a hydrocarbyl group containing from 2 to 36 carbon atoms (Specification, p.6, line 16). R₁, R₂, R₃, and R₄ are independently hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms (Specification, p.7, lines 1-2). Y is hydrogen, a negative charge, or a hydrocarbyl group containing from 1 to 4 carbon atoms (Specification, p.7, lines 2-3). Any of the hydrocarbyl groups can be optionally substituted with functional groups (Specification, p.6, line 17 and p.7, lines 2-3). The surfactant is essentially free of chloride containing compounds (Specification, p.4, lines 2, 12-13, p.12, lines 13-14, and p.13, lines 1, 10).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- a. Whether claims 4, 7-10, and 12-16 are indefinite under 35 U.S.C. § 112.
- b. Whether claims 7, 12-13, and 17 are anticipated by England, U.S. Pat. No. 6,720,290, under 35 U.S.C. § 102(e).
- c. Whether claims 4, 7, 8, 12-14, and 16-17 are obvious in view of Qu, U.S. Pat. App. Pub. No. 2002/0023752, under 35 U.S.C. § 103(a).
- d. Whether claims 9, 10, and 15 are obvious in view of Qu, England and/or Carey, U.S. Pat. No. 6,143,709, under 35 U.S.C. § 103(a).

(7) ARGUMENT

a. Claims 4, 7-10, and 12-16 are not indefinite.

Claims 4, 7-10, and 12-16 have been rejected as indefinite due to the recitation of “functional groups” without further limitation as to which functional groups are encompassed.

The meaning of the term “functional group” is generally known in the art, and therefore should not require further specificity within the indicated claims. For example, one skilled in the art will appreciate that functional groups are specific groups of atoms within molecules that are responsible for the characteristic chemical reactions of those molecules, and that a functional group will undergo the same or similar chemical reaction(s) as the group for which it is substituted. Thus, the term “functional groups” is definite in the context of claim 7 without reciting a particular set of functional groups in claim 7.

Appellants do specify examples of the functional groups that are encompassed by the limitation. See Specification, p.6, line 16 to p.7, line 3. These specific functional groups are now explicitly recited in new claim 17 (claim 17 is not included in this indefiniteness rejection). Though Appellants contend the term “functional group” should not be limited to those specific examples, the term “functional group” should be construed broadly enough to include *at least* those specific examples mentioned in the specification.

Reconsideration and withdrawal of this rejection is requested.

b. Claims 7, 12-13, and 17 are not anticipated by England.

Claims 7, 12-13, and 17 stand rejected under 35 U.S.C. 102(e) as being anticipated by England, U.S. Pat. No. 6,720,290. Claim 7 includes a limitation that the aqueous mixture recited in claim 7 is introduced into the well *during gas production* from the well. The examiner has improperly characterized the limitation “during gas production” as “any time . . . prior to completion of the well as dormant” (Office Action of May 29, 2008, p.5). During patent examination, the pending claims must be "given their broadest *reasonable* interpretation consistent with the specification." *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) (emphasis added); *see also* MPEP § 2111. The examiner's interpretation of the term "gas production" is unreasonably broad in the context of the specification.

One of ordinary skill in the art at the time of the invention would understand the scope of the phrase “during gas production” in the context of the specification to be when gas is actually flowing from the well. For example, as explained in the Background of the Invention, "[i]n natural gas wells, over time, *gas production slows* as the reservoir gas pressure decreases. A frequent cause of this loss of gas production is liquid loading that occurs when water and condensate from the formation flow into the well. As these liquids accumulate in the well, the gas to liquid ratio decreases, *flowing velocity decreases*, and the hydrostatic pressure in the well bore increases. With the increase in hydrostatic pressure, *gas production may decrease and stop altogether*" Specification, p.5, lines 9-17 (emphasis added). Also, in the description of the modified ASTM D-892 Test, the specification discusses maintaining the flow rate of methane-rich gas to simulate gas production. Specification, p.8, lines 10-13.

England, US 6,720,290, discloses well formation fracturing fluids and methods. The fracturing operations of England are necessarily performed when the well is *not* producing gas.

Therefore, England does not disclose “introducing into said well an aqueous mixture *during gas production from the well* to reduce liquid loading,” within the broadest reasonable interpretation of the term "gas production" consistent with the specification. Therefore, claim 7 should be allowable over England. Claims 12-13 and 17 should be allowable over England for at least the reason that they depend from claim 7.

Reconsideration and withdrawal of this rejection is requested.

c. Claims 4, 7, 8, 12-14, and 16-17 are not obvious in view of Qu.

Claims 4, 7, 8, 12-14, and 16-17 stand rejected as obvious over Qu, U.S. Pat. App. Pub. No. 2002/0023752 (issued as U.S. Pat. No. 6,435,277) under 35 U.S.C. § 103(a). As explained above, one of ordinary skill in the art would understand the term “during gas production” in claim 7, in the context of the specification, to be when gas is actually flowing from the well. Qu, like England, discloses well formation fracturing fluids and methods that are performed when the well is not producing gas. Therefore, Qu does not disclose “introducing into [a] well an aqueous mixture during gas production from the well to reduce liquid loading,” within the broadest reasonable interpretation of the term "gas production" consistent with the specification.

Moreover, the examiner cites to Qu at paragraphs [0109], [0207] and [0214] as disclosing foams and alcohols. However, these foams and alcohols are components of a fracturing fluid. See Qu, para. 0109. Fracturing fluids are not used “during gas production.” Consequently, Qu does not disclose, *inter alia*, “introducing into [a] well an aqueous mixture during gas production . . . the aqueous mixture comprising an amphoteric surfactant in an effective amount to create a stable foam within the well.” Therefore, claim 7 should be allowable over Qu. Claims 4, 8, 12-14, and 16-17 should be allowable over Qu for at least the reason that they depend from claim 7.

Reconsideration and withdrawal of this rejection is requested.

d. Claims 9, 10, and 15 are not obvious in view of Qu, England, and/or Carey.

Claims 9, 10 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Qu (2002/0023752) or England (6720290), optionally in view of Carey (U.S. Pat. No. 6,143,709). Claims 9, 10, and 15 depend from claim 7 (discussed infra.), and should be allowable for at least the reason that claim 7 should be allowable.

Furthermore, since both Qu and England are directed to formation fracturing fluids and methods, there is no suggestion to introduce such fluid through a capillary string. Formation fracturing typically involves the use of very high pressures.

Reconsideration and withdrawal of this rejection is requested.

Conclusion

In view of the above, Appellants respectfully request that the Board withdraw all of the Examiner's rejection of claims 4, 7-10, and 12-17. Because Appellants' arguments readily dispose of all rejections made in this case, Appellants further requests that the Board find that all claims 4, 7-10, and 12-17 are patentable.

Respectfully submitted,

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(8) CLAIMS APPENDIX

4. The method of claim 7, wherein the aqueous mixture includes a solvent selected from the group consisting of alcohols, glycols, glycol ethers and mixtures thereof.

7. A method of treating a gas well comprising:

introducing into said well an aqueous mixture during gas production from the well to reduce liquid loading, the aqueous mixture comprising an amphoteric surfactant in an effective amount to create a stable foam within the well, the amphoteric surfactant having the general formula:



wherein X is a hydrocarbyl group containing from 2 to 36 carbon atoms, R_1 , R_2 , R_3 , and R_4 are independently hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms, and Y is hydrogen, a negative charge, or a hydrocarbyl group containing from 1 to 4 carbon atoms, wherein any of the hydrocarbyl groups can be optionally substituted with functional groups, and wherein the surfactant is essentially free of chloride containing compounds.

8. The method of claim 7 wherein the weight ratio of amphoteric surfactant to water in said aqueous mixture is from about 1:46 to about 1:10.

9. The method of claim 7, wherein the aqueous mixture is introduced through a capillary string.
10. The method of claim 9, wherein the aqueous mixture is non-corrosive to metallurgy used in the capillary string.
12. The method of claim 7, wherein the resulting stable foam is effective at increasing production of gas from the well.
13. The method of claim 7, wherein the resulting stable foam is effective at increasing production of gas and other hydrocarbon liquids from the well.
14. The method of claim 7, wherein X is a hydrocarbyl group substituted with a functional group selected from an amido group, amino group, ester group, and combinations thereof.
15. The method of claim 7, wherein the amphoteric surfactant is introduced to the well to establish about 1,000 parts per million by volume of surfactant.
16. The method of claim 7, wherein the weight ratio of amphoteric surfactant to water in said aqueous mixture is from about 1:46 to about 1:7.
17. The method of claim 7, wherein the functional groups are selected from the group consisting of amido groups, amino groups, and ester groups.

(9) EVIDENCE APPENDIX

NONE

(10) RELATED PROCEEDINGS APPENDIX

NONE